

FIGURE 1

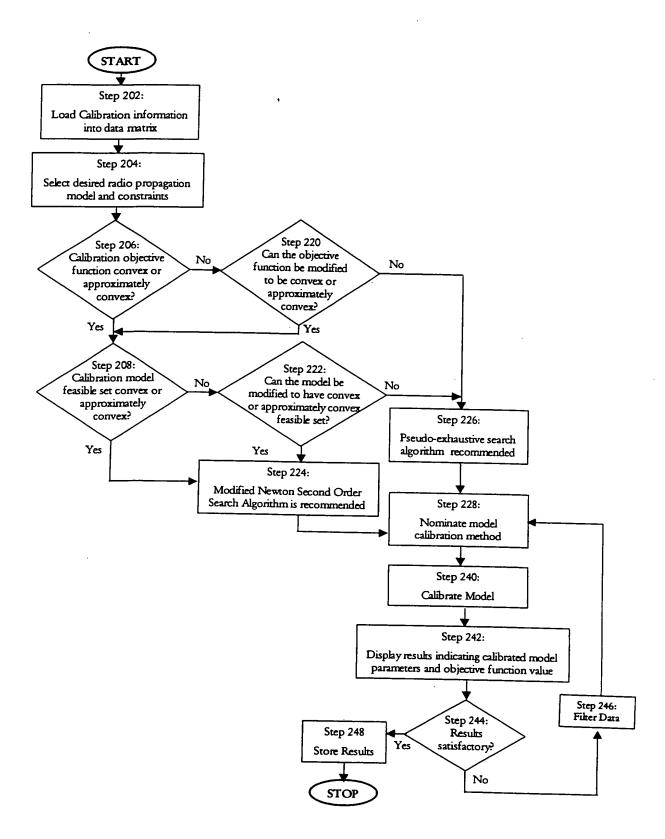


FIGURE 2

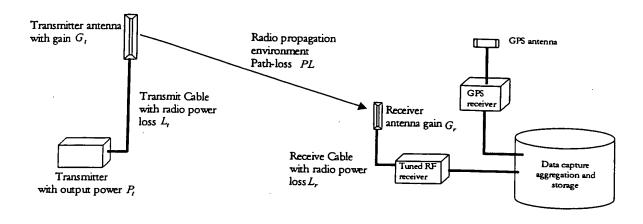


FIGURE 3

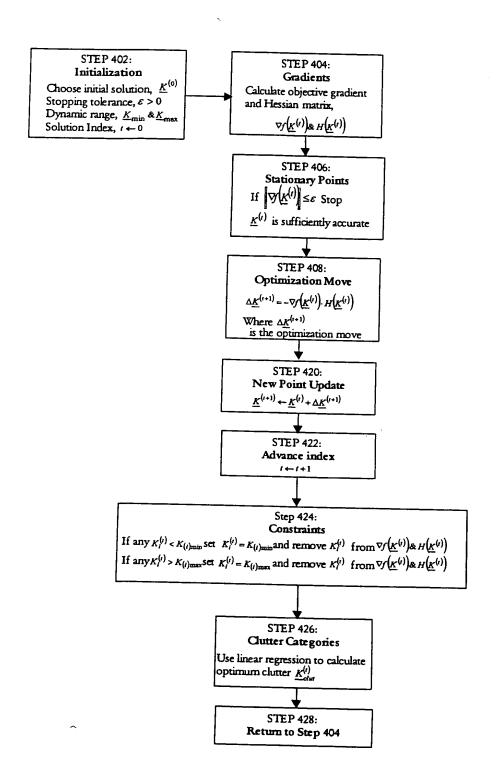
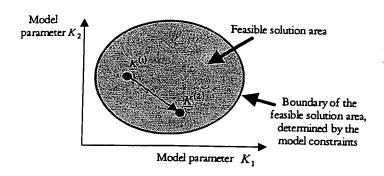


FIGURE 4



Demonstrates a convex feasible set, which implies that any solution within the feasible set can be reached from any other solution in the feasible set.

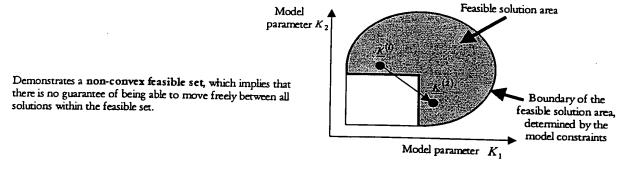
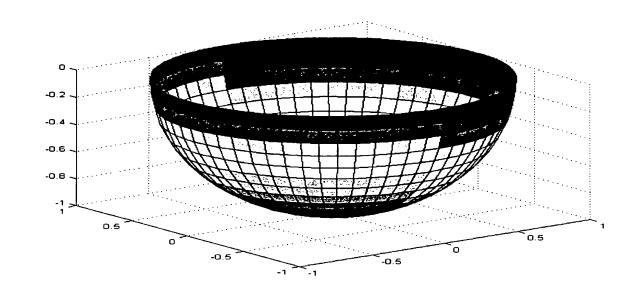
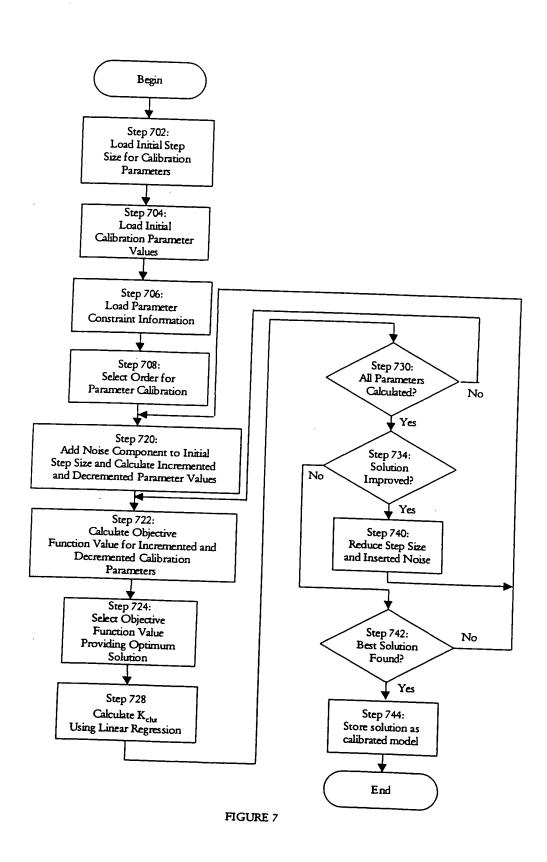


FIGURE 5



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FIGURE 6



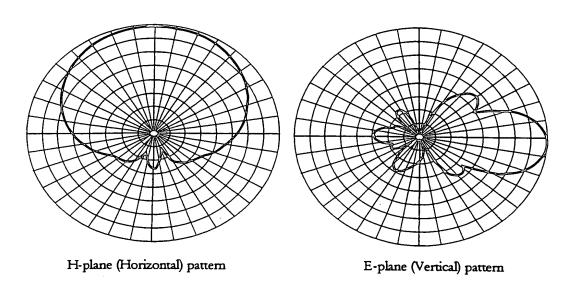


FIGURE 8

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#### STEP 902: Horizontal Antenna Gain

Antenna gain in the horizontal direction,  $H_a$  is determined for angle of the measurement data relative to the antenna location,  $\theta$  The intermediate angular field data may be obtained by interpolation of actual data

### STEP 904:

# Horizontal Relative Antenna Gains

Bore-sight and back-lobe (180 degrees relative to bore-sight) antenna gain is determined,  $(H_b \& H_{180})$ 

# STEP 906:

## Horizontal "Linear" Gain

Calculate the horizontal "linear" gain,

$$H_l = H_b - H_{180} * \frac{\theta}{\pi}$$

#### STEP 908:

## Horizontal Gain Differential

Calculate the difference between the actual and horizontal "linear" gains  $H\Delta = H_a - H_i$ 

### STEP 920:

## Vertical Orientation

Determine the vertical angle the measurement location makes with the antenna bore-sight,  $\phi$ 

### STEP 922:

## Vertical Gain Differential

Calculate the vertical gains in the front and rear lobes  $V_{f(\phi)} & V_{r(\phi)}$  and gain differential

$$V_{b(\phi)} = V_{f(\phi)} - V_{r(\phi)}$$

#### STEP 924:

#### Antenna Gain

Approximate 3-dimensional antenna

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$$G(\theta, \phi) = V_{f(\phi)} - \left[V_{b(\phi)} + \frac{\theta}{\pi}\right] + H\Delta$$

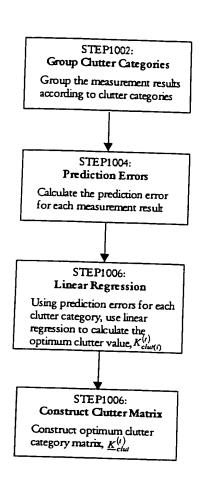


FIGURE 10

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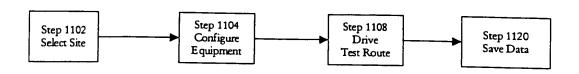


FIGURE 11